

# Ideas on the Edge

## High Steaks Research

A SOPHISTICATED FACILITY AT THE UNIVERSITY OF GUELPH IS USING HIGH-TECH SCIENCE TO MAKE ONTARIO BEEF MORE COMPETITIVE.

“When people think about beef,” says Dr. Stephen Miller at the University of Guelph, “they usually think of cowboys and



STEPHEN MILLER

the west.” But Dr. Miller points out that 20 percent of Canada’s feedlot capacity is here in Ontario—and a much greater percentage of the national market. Beef is important to the province, and researchers at the University of Guelph are using some high-tech tools to provide

**RESEARCH THAT MATTERS**  
REAL-WORLD BENEFITS FOR ONTARIANS:

- better beef products
- support for the province’s beef industry in the competitive global market



support for Ontario producers.

A key focus of the research is on efficiency of production. At a new test facility, funded in part with an investment by the Ontario Innovation Trust, researchers are using sophisticated equipment to monitor the feed habits of a test herd of 192 cattle. Radio frequency identification tags attached to each animal communicate with sensors on 12 feed bins to provide detailed information on when and how long the cattle feed. When this data is combined with information on weight gain and the final quality of

the meat, researchers are able to analyze a variety of feed strategies to see which is most efficient. "Feed efficiency also has an environmental factor," says Dr. Miller. "If you can produce the same amount of beef with less feed, that also means less manure and methane."

A second research focus is on tenderness—the number one criterion of beef quality according to consumer surveys. Guelph researchers have devised a method for quantitatively measuring the tenderness of meat from cattle raised in the facility. When the results are combined with animal feed records, researchers can see what strategies lead to the best quality.

Genetic factors are also important in producing quality meat. "If we can identify a gene that affects or

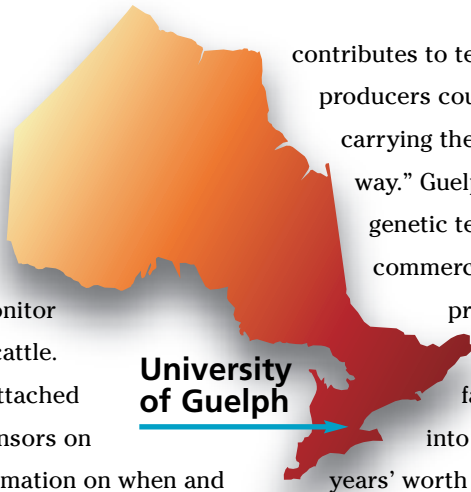
contributes to tenderness," Dr. Miller explains, "then producers could see if their animals are or aren't carrying these genes, and breed stock that way." Guelph researchers have devised one genetic test so far, and are in the process of commercializing it, in partnership with a private company.

All of the data collected at the facility, including DNA profiles, goes into a database that now contains 10 years' worth of information. The result is an invaluable resource to the province's cattle industry. At first, cattle producers were skeptical of the high-tech

program, but now they're embracing the results with growing enthusiasm. And that's what gives Stephen Miller the most satisfaction. "Our hope is to come up with tools producers will actually use. I always want to see applications in the industry."

In the competitive global beef market, those applications will become increasingly important in giving Ontario producers the edge they need.

**Project:** Advanced Data Acquisition and Analysis Systems for Targeted Changes in Beef and Cattle Breeding  
**Institution:** University of Guelph  
**Research Discipline:** Life Sciences/Biology  
**Principal Investigator:** Stephen Miller  
**Trust Investment:** \$980,908  
**CFI Investment:** \$980,908  
**Total research investment from all sources:** \$2,521,996



University of Guelph



**ONTARIO BEEF PRODUCERS ARE EMBRACING THE PROGRAM WITH GROWING ENTHUSIASM.**



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## Infrastructure for Innovation About the Ontario Innovation Trust

The Ontario Innovation Trust was created in 1999 by the Government of Ontario to invest in research equipment and facilities at Ontario's universities, colleges, hospitals and other non-profit research institutions. The Trust is governed by a volunteer Board of Directors, according to the terms of a Trust agreement established by the Ontario government. A small permanent staff looks after day-to-day operations.

Since its inception, the Trust has committed almost \$843 million to strengthen Ontario's position in the global marketplace of ideas. This represents more than a third of the \$2.44 billion in total funding that has been invested in Trust-supported projects.